

4.

A Revision of the Genera and Species of the
Family Pycnonotidae (Bulbuls).

JEAN DELACOUR.

(Plates I & II; Text-figures 1-13).

The bulbuls constitute one of the most clearly defined groups of perching birds (Passeres). This means that the different genera and subgenera which belongs to the group are obviously related to one another, and rather far removed from any others. A few other genera, however, which may be fairly closely related to them, are difficult to classify in the present state of our knowledge.

In my opinion, however, bulbuls do not belong to the large Muscicapidae family group (Muscicapidae), of which thrushes and robins (Turdinae), warblers (Sylviinae), babblers (Timaliinae) and a few others are evidently members. They are too different from any of these in their general structure, proportions, feathering, behavior and habits, and there do not seem to be any definite links with them, no more than with some other very different families.

As it so commonly happens with families extending over two or more continents and numerous islands, bulbuls have been studied mostly within the artificial limits of local avifaunas, and their general grouping has been often incomplete and fragmentary, their true affinities being ignored. Major studies and lists of Pycnonotidae can be found in Sclater's *Systema Avium Aethiopicarum*, 1930; Chasen's *Handlist of Malaysian Birds*, 1935; Mathews's *Systema Avium Australasiarum*, 1930; Hachisuka's *Birds of the Philippine Islands*, 1935; Stuart Baker's *Fauna of British India Birds*, 1922-1930; Bannerman's *Birds of Tropical West Africa*, 1936; and my own *Les Oiseaux de l'Indochine Française*, 1931. All these works, however, deal only with local avifaunas.

In 1934-36, the late Baron Snouckaert van Schaumburg published a distributional list of the Asiatic and East Indian Pycnonotidae, detailed but incomplete, and very uncritical. Dr. H. Oberholser in 1900 (*Trans. U. S. Nat. Museum*, XXI, p. 30, and XXII, p. 15), and in 1903 (*Smithsonian Misc. Coll.*, XLVIII, 1903, p. 155) studied different groups of African bulbuls and some Indian and Moluc-

can forms, describing a number of new genera, only a few of which can be recognized.

Finally, one must mention a study of the so-called Timaliine birds of Madagascar by Finn Salomonsen (*Ann. & Mag. N.H.*, Ser. 10, Vol. XIV, p. 60, 1934) where a number of forms are included which, in my opinion, belong to the Pycnonotidae.

The classification proposed below is more or less at variance with that adopted in these various works.

Without attempting a complete review of all the different subspecies and their local distribution, I thought it might be useful to endeavor to draw a better picture of the different genera, subgenera and species included in the Pycnonotidae as I understand them. The following conclusions are based on the examination of the large and excellent collection deposited at the American Museum of Natural History. I have been greatly helped by the work of Drs. E. Mayr and James Chapin in rearranging them.

In the field, I have had a good deal of experience with the Asiatic, Malay and Madagascan species, and also with some of the African ones. The observation of these birds in life and the study of their general behavior has given me a better understanding of their characteristics. This has been supplemented by the study of many live forms in captivity in my former collections and in others, public and private.

Bulbuls are of moderate size, varying from that of an English sparrow to about that of an American robin. They have rather short wings and a comparatively long tail; their beak is never large, but is slender to moderately thick, notched, with rictal bristles usually well developed; nostrils are long or oval, more or less operculated. Their legs and feet are always rather weak, usually small and often very short.

The following characteristics are peculiar to the Pycnonotidae: the body feathers are long, soft and fluffy, particularly on the lower back. The skin is thin and the neck is

very short and more or less devoid of feathers behind, so that a bulbul with an outstretched neck shows a somewhat bare patch between the nape and upper back feathers, a feature quite characteristic of the group. There are always some hair-like feathers on the nape, often long and conspicuous, sometimes weak and difficult to detect. This is, however, not a diagnostic family characteristic as it is also found in different other birds. Most of the bulbuls are olive-green, yellow or brown, with or without white, gray, black or yellow marks. A number have lightly colored under tail-coverts, varying from red to yellow, white or rufous, and some have bright yellow or scarlet spots or streaks on the head, and conspicuous ear-coverts. Many bulbuls are crested, but the presence or the absence of a crest and its relative length and shape is of little importance. Frequently this does not constitute even a specific character, since in several cases some subspecies of the same species are crested while others are not. Several groups have also lengthened, shiny and ornamental throat feathers, white, yellow or reddish-copper color. Others have long upper tail-coverts and lengthened feathers on the rump and lower back, ornamented with spots and marks.

In all bulbuls both sexes are alike in plumage and often also in size, but in a few cases the male is much larger than the female. Immatures are not spotted and differ but little from the adults. In these points, they widely differ from the flycatchers, thrushes and robins. Many live in forests and their edges, others in sparsely wooded or bushy surroundings and quite a number frequent cultivation and gardens. They are noisy, their notes being always short and loud, either melodious or harsh according to genera and species. Many can be considered good songsters. They generally live in groups, outside of the breeding season, some species in large flocks, and they mix with other birds in wandering hunting parties.

Most bulbuls are fruit and berry eaters, to which they add insects, while a few are mainly insectivorous. The latter are found among the strong or compressed bill forms.

The majority of species are sedentary, but some migrate, the northern breeders in Asia to a great extent; they are the longer-winged forms, particularly *Microscelis*. All bulbuls build cup-shaped nests and lay heavily marked eggs.

Representatives of the Pycnonotidae, as defined above, are found all over Africa, in Madagascar and the Mascarene Islands, Asia, the Philippines, the Malay Archipelago and the Moluccas.

Of thirteen genera, eight are confined to Africa (*Calyptrorhynchus*, *Boeopogon*, *Izonotus*, *Thescelocichla*, *Chlorocichla*, *Phyllastrephus*,

Bleda, *Nicator*), three to Indo-Malaya (*Spizizos*, *Setornis*, *Microscelis*), while two (*Pycnonotus* and *Criniger*) are found in both regions. In Madagascar one finds species of the African genus *Phyllastrephus* and a form of the species *Microscelis madagascariensis*, which is represented in the Mascarene Islands and from India to China and Indo-China.

A few isolated and puzzling genera have a much discussed and still uncertain position:

The curious *Hapalopteron familiare* from the Bonin Islands, usually considered a bulbul, is so far removed in proportions and plumage pattern that it is better rejected from the group. It may be an aberrant *Zosterops*.

Tylas eduardi from Madagascar, also usually considered a bulbul, does not fit in well, widely differing in the proportions of the wings and tail, the shape of bill, the pattern and color of its plumage. In habits it is also peculiar, living in tree tops of forests and being slow in movements, reminding one somewhat of the Asiatic *Cochoa*. It is purely insectivorous and may be a true Turdine bird.

The African *Hypergerus atriceps* has features somewhat recalling those of the Pycnonotidae, but its long, decurved beak, its high legs and its ground habits make it unlikely to be a true bulbul.

The proportions and color pattern of another African bird, *Neolestes torquatus*, make it difficult to accept it in the present group, although it has some characteristics suggesting affinities and is certainly not a shrike. It may be a very aberrant *Pycnonotus*.

Only detailed studies of the anatomy, habits and behavior of these four peculiar birds can decide whether or not they can be included in the Pycnonotidae. Until this is accomplished it is best not to consider them as true bulbuls. They are not discussed any further in this paper.

Several other genera have been assigned by different authors to the Pycnonotidae. Such are, on one side, the fairy bluebirds (*Irena*) and on the other the leaf birds and ioras (*Chloropsis*, *Aethorhynchus* and *Aegintha*). They all differ greatly from the true bulbuls in plumage texture, pattern and colors, while males, females and young are conspicuously unlike. The proportion of the tail and wings, their legs and feet, are also very different. They are better considered as forming separate families, possibly not very far from the Oriolidae. But this still remains an open question.

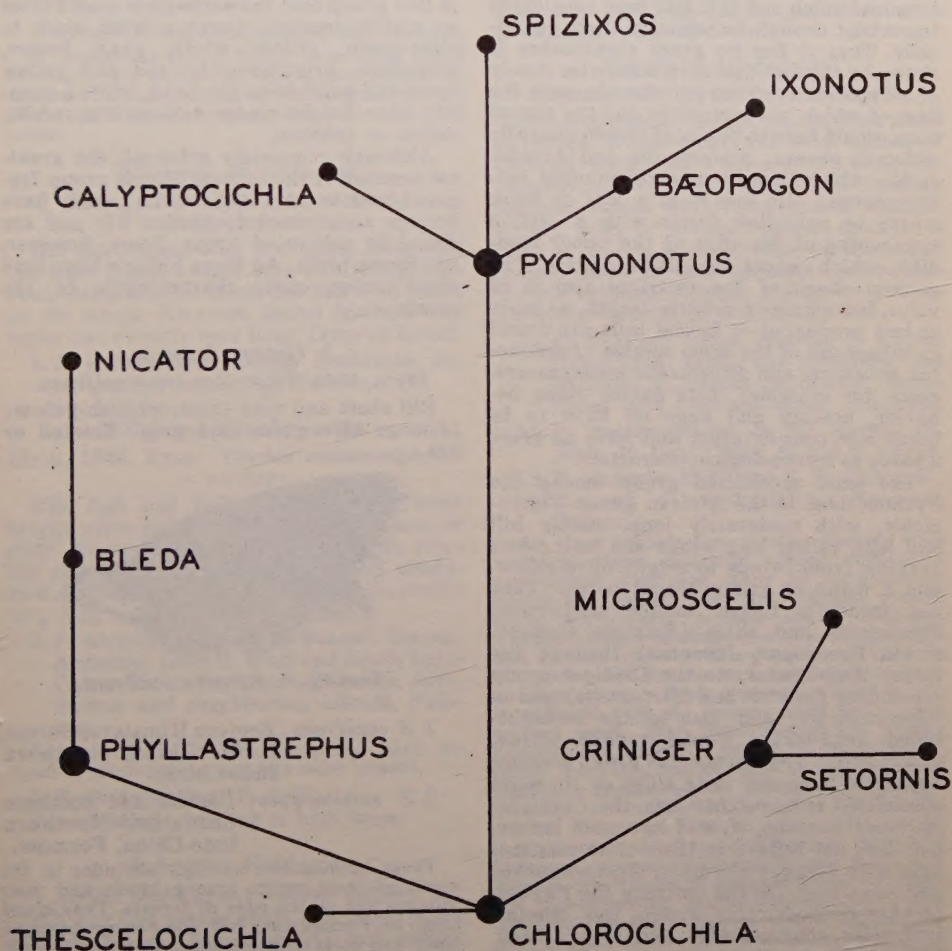
On the other hand, I have included with the Pycnonotidae several Madagascan birds classed in the Timaliidae by many authors under the generic names of *Bernieria*, *Crossleyia*, *Xanthomixis* and *Orylabyes*. In fact,

they cannot be separated from the African *Phyllastrephus* in which I place them. "*Bernieria*" *madagascariensis* and "*B.*" *zosterops* are evidently quite close to such species as *Phyllastrephus icterinus* and *P. xavieri*; all of them show an extraordinary difference in the size of males and females, a very peculiar feature. The so-called "*Oxylabes*" *tenebrosa*, *xanthophrys* and *cinereiceps*, although aberrant, rare and restricted in distribution, are certainly nearer to *Phyllastrephus* than to *Oxylabes madagascariensis*, a true Timalline bird, completely different in proportions, shape and color pattern, with a much thicker bill and shorter wings, as is also *Mystacornis crossleyi*, both of which live on or near the ground. Close resemblance between Madagascan *Bernieria* and African *Phyllastrephus* has been long ago pointed out, particu-

larly by Hartlaub (Vog. Madag., 1877, p. 144), by Milne-Edwards and Grandidier (Hist. Phys. Madagascar, Vol. XII, p. 348) and more recently by J. Chapin. That it has escaped others shows once more the danger of the separate study of local avifaunas.

The bulbuls, that is to say, the species which show the general characteristics which I have mentioned above, can in my opinion be divided into thirteen genera, a very much smaller number, of course, than is usually accepted¹, and some can conveniently be subdivided into subgenera. Their relationships are more or less close

¹ Sclater (Systema Avium Aethiopicarum) recognizes 24 genera (including *Bernieria* and allies, and *Nicator*, not classified by him as Pycnonotidae), while Snouckaert (Orgaan Nederl. Vogelk.) recognizes 21 for Asia and Malaysia (not including *Chloropsis*, *Aethorhynchus* and *Aegithina*, leaving out—work not completed—many species of the *Criniger-Microscelis* group).



Text-fig. 1. Relationship of the bulbuls.

and of four principal groups, the three more specialized ones can be linked to a central and more generalized one (see Text-fig. 1). The species are reduced to 109, an average of 8.4 per genus, but five of the latter remain monotypic, while one includes 47, another 23.

In defining these genera, an ensemble of characters of real importance has been considered. Others have been disregarded. As I have said above, the presence or absence of a crest is a negligible feature as it varies within the same species (*Pycnonotus leucotis* and *P. dispar*, for instance). Most important are the general pattern and color of the plumage, the shape of the bill and nostrils, the length of the tarsus and toes. A few species show slight serrations near the tip of the upper mandible, close to the terminal notch and this has been considered important enough to separate them generically. That it has no great significance is shown by the fact that such otherwise closely allied species as *virens* and *mazukuensis*, the first of which has serrations and the second none, would have to be placed in two allegedly different genera, *Andropadus* and *Arizelocichla*, which then become ridiculously heterogeneous; also one is at a loss to know where to put other forms with a certain roughening of the edge of the upper mandible, which cannot be called serration. The general shape of the rectrices also is of value, but not their relative length, as more or less graduated or forked tails are found in subspecies of the same species (*Pycnonotus flavescens* and *Microscelis madagascariensis*, for example). Life habits, voice, behavior, nesting and eggs all have to be taken into consideration and have as great a value as morphological characters.

The least specialized group among the Pycnonotidae is the African genus *Chlorocichla*, with moderately long, strong bill and legs, rather long wings and tail, colors varying from brown to bright olive-yellow, and a white or yellow throat patch. They are evidently linked to the short-billed *Pycnonotus* and allies (*Spizixos*, *Calyptocichla*, *Boeopogon*, *Ixonotus*) through the larger *Andropadus*; to the *Criniger* group (including *Setornis* and *Microscelis*) and to *Thescelocichla*, and also to the straight-billed, long-legged *Phyllastrephus*, *Bleda*, and *Nicator*. The *Pycnonotus* group does not appear to have any near allies on its more specialized end, neither has the *Criniger-Microscelis* group, if, as I have said before, one does not believe in their close relationship with *Irena*, *Chloropsis*, *Aethorhynchus* and *Aegithina*. On the contrary the *Phyllastrephus-Bleda-Nicator* group, less specialized, with stronger legs and longer beak, has some resemblances to some Timaliine birds on one side, and to certain hooked-

billed groups such as *Campephagidae*, *Priopodidae*, *Vangidae* and certain African genera so far included in the *Laniidae*.

A. *Pycnonotus* GROUP.

This first group of bulbuls is composed of numerous species, the greatest number of which cannot be generically separated and form the genus *Pycnonotus*, while a few are different enough to be retained as forming small distinct genera.

They all have a comparatively short bill; the culmen is curved and not sharply ridged, the gonyes almost straight, nostrils oval or elongated, operculate to different degrees. Rictal bristles rather weak. Tarsus short or moderate. Wings rather short, about equal to the tail, which is comparatively long, square, rounded or slightly graduated. It is in this group that the plumage is most varied or vividly marked, ranging from black to olive-green, yellow, white, gray, brown, sometimes brightened by red and yellow spots and patches on the head, while a number have bright under tail-coverts, white, yellow or crimson.

Although completely arboreal, the greatest number of the bulbuls of this group frequent bush or park-like country; many have become accustomed to garden life and are found in cultivated areas. Some, however, are forest birds. All these bulbuls have loud short notes, quite characteristic of the group.

I. GENUS *Spizixos*.

Blyth, 1845. Type: *Spizixos canifrons*.

Bill short and very thick, whitish-yellow; plumage olive-green and gray. Crested or not.



Text-fig. 2. *Spizixos canifrons*.

1. *S. canifrons*: Eastern Himalaya, Burma, S. W. China, Northern Indo-China.
2. *S. semitorques*: Central and Southern China and Northern Indo-China, Formosa.

These bulbuls live at high altitudes in the south of their range among brush and near villages and on the edge of forests. They stand close to *Pycnonotus*, but their very peculiar beak and color entitles them to generic rank. *S. canifrons* is crested while *S. semitorques* is not.

II. GENUS *Pycnonotus*.

Boie, 1826. Type: *Turdus capensis*.

Bill moderately thick and long for the group; colors and pattern very variable. Feathers on the crown erectile and either elongated or normal in length.

Subgenus *Euptilosus*.

Gray, 1853. Type: *Brachypus eutilotus*.

Bill rather long and strong, rectal bristles long and black; feet dark gray or black. Wings rather long and tail graduated. General color brown above and whitish below. Long crest of rounded feathers on occiput. Rump feathers ample and very long, marked with white and dark brown. All lateral rectrices with white tips.

1. *P. eutilotus*: Malay Peninsula, Sumatra, Banka and Borneo.

2. *P. urostictus*: Philippines and Borneo.

P. urostictus has a fleshy bare ring round the eye, but otherwise resembles closely *P. eutilotus*; it cannot be subgenerically separated. They are birds of open ground and cultivated areas.

Subgenus *Microtarsus*.

Eyton, 1839. Type: *Microtarsus melanoleucus*.

Bill moderately long and thick, black like the legs. Wings rather long and tail graduated. General color black, marked with white on the wings. No crest. Rump feathers and upper tail-coverts very long. Lives in forest.

3. *P. melanoleucus*: Malay Peninsula, Sumatra, Siberut I. and Borneo.

Subgenus *Brachypodius*.

Blyth, 1845. Type: *Turdus melanocephalus atriceps*.

Bill, feet and legs small. General color bright olive-yellow or green, and black or gray. No crest, but feathers of crown erectile and rounded. Wings short; tail graduated. Rump feathers and upper tail-coverts very long and marked with black.

4. *P. atriceps*: Assam, E. Bengal, Burma, Andaman Islands, West and South Indo-China, Malay Peninsula, Sumatra, Java, Borneo and neighboring islands, Palawan.

Forms with gray underparts and back, instead of olive-yellow, are but color phases.

5. *P. poiocephalus*: S. India.

Forest bulbuls, keeping to high trees.

Subgenus *Rubigula*.

Blyth, 1845. Type: *Turdus dispar*.

Bill and legs rather short and weak, black or dark brown. Wings short; tail rather long, square or rounded. Upper parts bright olive-yellow, head black or gray; underparts

yellow, gray or mottled black and white. Crested or not. Iris crimson or yellow.

6. *P. dispar*: Western, Central, N. Eastern India, Burma, Yunnan, Indo-China, Siam, Malay Peninsula, Sumatra, Borneo and Java.

7. *P. melanicterus*: Ceylon.

8. *P. squamatus*: Malay Peninsula, Sumatra, Borneo, Java.

9. *P. cyaniventris*: Malay Peninsula, Sumatra, Borneo.

These are all forest birds. I consider *flaviventris* (and its local races), *montis* and *gularis* as subspecies of *dispar*; *flaviventris* is similar to *dispar* except for its pointed crest which becomes gradually shorter as it ranges south; *dispar* has a shiny red throat and *flaviventris* has usually a black one, but specimens with a red throat, as well as intermediates, are not uncommon in the southern and eastern parts of its range; *gularis* is but a small, duller form of *dispar*.

Subgenus *Otocompsa*.

Cabanis, 1851. Type: *Lanius jocosus*.

Bill moderately strong, black; legs small and black. Wings short, tail long, square or rounded. Upper parts plain brown or greenish-gray; crown black; ear-coverts forming patches; throat white; underparts whitish-brown, with or without yellow streaks; a black or brown broken collar on the upper breast, more or less definite; under tail-coverts crimson, orange yellow or yellowish-white. Crested or not. Iris brown.

10. *P. jocosus*: India, Burma, S. China, Indo-China, Siam, the Andaman and Nicobar Is., Malay Peninsula. Introduced into different other countries.

11. *P. xanthorrhous*: N. E. Burma, N. Siam, N. Indo-China, S. and C. China.

12. *P. sinensis*: E. C. and S. E. China, E., N. and C. Indo-China, Formosa, Hainan.

All these bulbuls live in open country with scattered trees, clearings around cultivation and human dwellings. They all have similar habits and voices. They are familiar garden birds, particularly *jocosus* and *s. sinensis*. Northern forms of *sinensis* only are migratory. The general pattern of coloration is alike in all species, but *jocosus* and *xanthorrhous* have no olive green in their plumage, while *sinensis* is suffused with it; *jocosus* only has a long pointed crest. That these species are closely related is furthermore shown by the following facts: there is a scarlet patch on the cheeks of *jocosus*, a smaller one at the base of the lower mandible in *xanthorrhous*, and a still smaller one at the same place in *sinensis taiwanus*; it is absent in other races of *sinensis*, including *hainanus*; *jocosus* and *taiwanus* have white ear-coverts, other races of *sinensis* brown or white, and *xanthorrhous* brown; *jocosus* has wide white tips to the rectrices, except the central pair, broader on the outside ones; *xanthorrhous* has very narrow white tips, while *sinensis* has only indistinct pale edgings.

Subgenus *Pycnonotus*.Boie, 1826. Type: *Turdus capensis*.

Bill and legs rather strong and black. General color brown or brownish-gray, darker above, lighter below, plain or mottled, exceptionally tinged with olive (*leucogenys*); head black or brown with more or less elongated feathers on the crown forming a crest in some cases. Wings moderate; tail long and square, often tipped with white; under tail-coverts crimson, yellow or white. Ear-coverts white, brown or black. These bulbuls are larger, longer and coarser than those of the *Otocompsa* subgenus.

13. *P. capensis*: S. Africa.14. *P. nigricans*: S. and S. W. Africa.Text-fig. 3. *Pycnonotus barbatus tricolor*.15. *P. barbatus*: Africa, Arabia, Palestine, Syria, Cyclades I.16. *P. leucotis*: Mesopotamia, Persia, Baluchistan, N. W. & C. India.17. *P. leucogenys*: Himalaya and N. W. India from Afghanistan to Assam and north of the Brahmaputra to Dihang River.18. *P. cafer*: Ceylon, India, Burma, S. China, Siam, Indo-China, Java.

All these typical bulbuls are birds of cultivated and open countries, like those of the *Otocompsa* group, but they are stronger, with longer wings, broader tails and a more uniform plumage.

P. barbatus includes all African (Ethiopia and North Africa), Arabian, Palestinian and Syrian birds, which replace one another geographically and have white under tail-coverts in the north and west, gradually changing to pale and bright yellow to the south and to the east, where they have light tips to the tail, black head and throat, thus approaching *leucotis*. On account of their very different color pattern, I consider *leucotis* and *leucogenys* two different species.

P. cafer includes all the Asiatic forms with a white rump, almost black with crimson under tail-coverts in the west gradually changing to light gray in the east. Isolated forms in S. Siam, S. Indo-China and Java (*thais*, *germaini* and *aurigaster*) are pale, with yellow under tail-coverts, but evidently belong to the same species and have nothing whatever to do with *xanthorrhous*, which they only superficially resemble. Some birds from western Siam have orange under tail-coverts, thus providing a link.

Subgenus *Alcurus*.Blyth, 1843. Type: *Trichophorus striatus*.

Bill and legs dark brown, rather weak; general color olive, striped with white, or plain above, and mottled with white or yellow below; throat white or yellow. Crested or not.

19. *P. striatus*: Himalaya, Burma, Yunnan, N. Siam, N. W. Indo-China.20. *P. leucogrammicus*: Sumatra.21. *P. tympanistrigus*: Sumatra.

These three species are certainly related, the first two rather closely, having both a striated plumage above and a full crest. But the sharp differences in the size and in the shape and length of the elongated feathers of the crown are sufficient to make me consider them as two separate species. *P. tympanistrigus*, a rare species, is more distantly related but all the same certainly not very far from *leucogrammicus*, which it much resembles in size and in color, with the exception of the crown and upper back. All three frequent forests and scrub at high altitudes.

Subgenus *Hemitarsus*.Bonaparte, 1850. Type: *Turdus ochrocephalus*=*zeylanicus*.

Largest sized species of the genus; bill and legs rather short, but strong; crown with short, stiff, decomposed yellow feathers; upper parts olive brown and lined with white.

Text-fig. 4. *Pycnonotus zeylanicus*.22. *P. zeylanicus*: Malay Peninsula, Sumatra, Nias I., Borneo, Java.

An open country, lowland bird. Its particularly large size and the peculiar feathers of its crown do not seem, however, to warrant generic differentiation, the bird being a true *Pycnonotus* in every other way. In spite of the tremendous difference in size, it resembles closely, *P. tympanistrigus* in shape and color.

Subgenus *Loidorus*.Cabanis, 1851. Type: *Muscicapa goiavier*.

Short-winged bulbuls, with rounded or slightly graduated tail, weak or moderate bill and feet, black or brown. General color olive gray or brown, many species with a green wash on the upper parts and the edge of wing and tail feathers; bend of wing yellow or whitish. Less differentiated forms almost plain brown, more differentiated ones with white or yellow supercilium or other bright marks on the face and yel-

low under tail-coverts. Feathers of the crown sometimes elongated, but no pointed crest.

23. *P. bimaculatus*: Sumatra, Java, Bali.

24. *P. finlaysoni*: Burma, Yunnan, Siam, Indo-China, Malay Peninsula.

25. *P. xanthoemus*: S. India.

26. *P. penicillatus*: Ceylon.

27. *P. flavescens*: Assam, Burma, Siam, S. Yunnan, Indo-China, Borneo.

28. *P. goiavier*: S. Siam, S. Indo-China, Malay Peninsula, Sumatra and neighboring islands, Java, Bali, Borneo, Philippine Is.

29. *P. luteolus*: Peninsular India and Ceylon.

30. *P. plumosus*: Malay Peninsula, Sumatra and neighboring islands, Java, Borneo, Palawan, Calamianes, Cagayan, Sulu.

31. *P. blanfordi*: Burma, S. Indo-China, Siam, N. Malay Peninsula.

32. *P. simplex*: Malay Peninsula, Sumatra and neighboring islands, Borneo, Java.

33. *P. brunneus*: Malay Peninsula, Sumatra and neighboring islands, Borneo.

34. *P. erythrophthalmos*: Malay Peninsula, Sumatra and neighboring islands, Borneo.

The members of this large group of bulbuls are certainly much more closely related among themselves than any others, and one leads fairly well to the other, as arranged above. They are all birds of forest undergrowth and scrub, some, particularly *goiavier*, becoming familiar garden birds. *Leucops*, from Borneo, is evidently a subspecies of *flavescens* from which it hardly differs; the slightly graduated tail of the latter does not entitle it to generic distinction, as often accepted (*Xanthirus*). In fact, it is the northern or mountain representative of *goiavier*, as *luteolus* is its western counterpart. The separation of *penicillata* in the genus *Kelaartia* also seems unnecessary, although it is a very well-marked species; but its face ornaments are only an over development of those found in neighboring forms. *P. xanthoemus* is a rare and peculiar bird, but seems to be an unstreaked, grayer and paler representative in the west of *P. finlaysoni*.

Subgenus *Andropadus*.

Swainson, 1831. Type: *Turdus importunus*.

Bill small or moderate, black or horn brown, with or without small serrations before the terminal notch on the upper mandible. Legs and feet moderate in size and variable in color like the bill. Wings and tail moderately long; general color uniform olive brown or green, lighter below, sometimes gray or yellow with a black or gray head; one with yellow malar patches. Not crested.

35. *P. masukuensis*: East Africa (highlands).

36. *P. virens*: West Africa to Kenya and Nyasaland.

37. *P. gracilis*: West Africa to Uganda and Kenya.

38. *P. curvirostris*: Liberia to Uganda, Congo and Angola; Fernando Po.

39. *P. importunus*: South Africa.

40. *P. insularis*: East Africa (coast).

41. *P. latirostris*: West Africa to Uganda and Kenya.

42. *P. gracilirostris*: West Africa to Angola, Uganda, Kenya.

43. *P. nigriceps*: Kenya, Tanganyika and Nyasaland.

44. *P. montanus*: Cameroon.

45. *P. tephroloemus*: Cameroon, Uganda and Tanganyika.

46. *P. milajansis*: Kenya, Tanganyika, Nyasaland, E. Rhodesia.

47. *P. chlorigula*: Tanganyika.

Several generic names proposed by Oberholser cannot be recognized on account of the confusion or lack of importance of the characters invoked, and the following are synonyms of *Andropadus*: *Eurillas*, *Stelgedillas*, *Stelgocichla*, *Charatillas*, *Arizelocichla*. Bulbuls of this large African subgenus are shy forest birds of somber plumage and several bear close resemblance to the Indo-Malayan *Loidorus*. *P. tephroloemus* and *P. milajansis*, for example, show the same pale shaft stripes on the ear-coverts as *P. plumosus*. Bill and legs vary much in length and strength throughout the subgenus, as in the previous ones. These variations are not linked with the presence or absence of serrations or roughening on the upper mandible, nor to the color or pattern of the plumage.

III. GENUS *Calyptocichla*.

Oberholser, 1905. *Criniger serinus*.

The African species *C. serina* is undoubtedly closely related to the subgenus *Andropadus*, but it differs considerably from all *Pycnonotus* by its almost straight and slender bill, which is narrow, higher than broad and flesh colored; operculum completely feathered. Plumage light olive above, bright yellow below. Tail rather short and wings long. A forest species.



Text-fig. 5. *Calyptocichla serina*.

1. *C. serina*: West Africa (Sierra Leone to the Congo); Fernando Po.

IV. GENUS *Boeopogon*.

Heine, 1860. Type *Criniger indicator*.

Not far from *Andropadus*, but has the bill short and broad, wider than high at the base, nostrils operculate and half covered by front feathers. Bill and legs black or gray. Rictal bristles weak. Tail short. ($=\frac{3}{4}$ wing), the two median pairs of rectrices greenish black, the others whitish-yellow. Upper parts olive green; under parts paler; throat gray. Forest bird of the tree tops.

1. *B. indicator*: West Africa to Uganda and Angola.

I think Stresemann is right in considering *B. clamans* as a color phase of *B. indicator*, and not as a separate species.

V. GENUS *Ixonotus*.

Verreaux, 1851. Type: *Ixonotus guttatus*.

Resembles *Boeopogon* in having the outer pairs of rectrices yellowish-white. Bill longer and narrower. Very peculiar plumage pattern, olive gray above with large white spots on the wing and lower back, yellowish-white below. A bird of the tree-tops, more active than *Boeopogon*.

1. *I. notatus*: Liberia to Angola, the Congo and Uganda.

B. *Chlorocichla* GROUP.VI. GENUS *Chlorocichla*.

Sharpe, 1881. Type: *Trichophorus flaviventris*.

Bill black, moderately long and thick, slightly compressed; nostrils oblong with operculum slightly feathered; culmen and gonys gently curved; culmen notched at the tip. Nuchal hair short; rictal bristles moderately developed. Tail equal to wing, rounded or slightly graduated. Feet strong, legs rather long, gray. General color brown to olive yellow above, paler below, the throat forming a white or yellow patch, more or less clearly defined. These bulbuls live in forest thickets.



Text-fig. 6. *Chlorocichla falkensteini* falkensteini.

1. *C. falkensteini*: Cameroon and Angola.
2. *C. simplex*: West Africa, from Portuguese Guinea to N. Angola, east to Ituri and Semliki.

3. *C. flavicollis*: West Africa to Bahr-el-Ghazal, Uganda, and Lake Tanganyika.

4. *C. flaviventris*: East and South Africa.

5. *C. loetissima*: Belgian Congo, Uganda and Kenya.

The five species of *Chlorocichla* have been scattered by different authors over many genera. Others have associated them with *Pyrrhurus scandens*, which I consider a *Phyllastrephus*, having a straight compressed bill. These five species are much alike in shape, proportions and color pattern, but as a group they are altogether allied to *Pycnonotus*, *Crimiger* and *Phyllastrephus*, between which they constitute a link.

VII. GENUS *Thescelocichla*.

Oberholser, 1905. Type: *Phyllastrephus leucopleurus*.

Bill like *Chlorocichla*; feet and legs strong. Tail long and graduated, fan-shaped, the four lateral pairs of rectrices with large white tips. Color pattern peculiar, olive brown above, the face and breast gray streaked with white, the remaining under parts white tinged with yellow. Habits also peculiar; a bird of the raphia swamps.



Text-fig. 7. *Thescelocichla leucopleura*.

1. *T. leucopleura*: West Africa.

C. *Phyllastrephus* GROUP.VIII. GENUS *Phyllastrephus*.

Swainson, 1831. Type: *P. terrestris*.

Bill long, slender, compressed and carinated; culmen almost straight, curved only near the tip, with a terminal notch, often strong; gonys slightly convex. Nostrils slit-shaped set in a depression; rictal bristles variable. Legs longer than bill; feet strong. General color pale brown, olive green or yellow, lighter and sometimes brighter below; a few have the head gray, the throat white; wings and tail often reddish-brown. Tail rounded or graduated. Sexes different in size; in some cases the male is strikingly larger than the female and has a much longer bill. The bulbuls of this genus are forest birds, some living near the ground, in thickets and the lower vegetation; they are mainly insectivorous, and the nearest of the family to Timaliine and Sylviine birds.

1. *P. scandens*: West Africa, east to Bahr-el-Ghazal.

Text-fig. 8. *Phyllastrephus terrestris terrestris*.

2. *P. terrestris*²: East and South Africa.
3. *P. cerviniventris*: Kilimanjaro to Nyasaland, Katanga and N. Rhodesia.
4. *P. poensis*: Fernando Po and Mt. Cameroon.
5. *P. hypochloris*: W. Uganda and E. Congo.
6. *P. fulviventris*: Angola.
7. *P. olivaceo-griseus*: Kivu (Congo), Ankole (Uganda).
8. *P. flavostriatus*: S. E. Africa.
9. *P. rabai*:³ Rabai and Shimba Hills near Mombasa, E. Africa.
10. *P. lorenzi*: Semliki and Ituri districts (B. Congo). Not examined.
11. *P. albigularis*: West Africa to Uganda.
12. *P. fischeri*: Kenya and Tanganyika.
13. *P. baumanni*: Togo and Ivory Coast.
14. *P. poliocephalus*: Mt. Cameroon.
15. *P. orostruthus*: Portuguese E. Africa. Not examined.
16. *P. cabanisi*:⁴ Uganda, E. Belgian Congo to N. Rhodesia.
17. *P. icterinus*: West Africa to Uganda.
18. *P. xavieri*: Angola, S. Cameroon, and French Congo.
19. *P. madagascariensis*: Madagascar generally.
20. *P. zosterops*: N. and E. Madagascar.
21. *P. tenebrosa*: C. E. Madagascar.
22. *P. xanthophrys*: E. and S. E. Madagascar.
23. *P. cinereiceps*: E. and S. E. Madagascar.

I have arranged in a new way the sequence of species, but for specific grouping and names I have used those adopted by J. Chapin in yet unpublished notes. The first species are those with a thicker bill and browner coloration, the last those with a narrower and more compressed bill and yellower plumage.

² *P. strepitans* I provisionally consider a subspecies of *terrestris*, although Friedmann & Loveridge report both forms from Bagamoyo and Dar-es-Salam (*Bull. C.M.Z.*, LXXX, p. 231).

³ *debilis* is probably a synonym.

⁴ *P. sucosus* is probably a subspecies.

IX. GENUS *Bleda*.

Bonaparte, 1857. Type: *Dasycephala syndactyla*.

Bill narrow and high, compressed; culmen straight and strongly hooked at the tip; gonys convex; nostrils oval; strong rictal bristles. Legs long and strong; middle and outer toes fused as far as the first joint. Olive green above, bright yellow below, wings and tail reddish or green; head gray in one species. Female much smaller than male, which has a larger bill. These birds live in the undergrowth of forests and are insectivorous.

Text-fig. 9. *Bleda syndactyla syndactyla*.

1. *B. syndactyla*: West Africa, east to Uganda.
2. *B. eximia*: West Africa, east to Uganda.
3. *B. canicapilla*: N. West Africa.

X. GENUS *Nicator*.

Hartlaub & Finsch, 1870. Type: *Lanius chloris*.

Bill strong, compressed and hooked; thicker near the tip than in *Bleda*; gonys convex; legs and feet strong; general color olive yellow and gray, with yellow spots on the wings; tail margined with yellow below. Soft, fluffy abundant plumage of the bulbuls, not the hard, close one of the shrikes. Female much smaller than male as in *Bleda* and *Phyllastrephus*. Chattering voice of bulbuls and brilliant song. Birds of bush and forest; insectivorous.

1. *N. chloris*: Tropical Africa.
2. *N. vireo*: Cameroon to N. Angola and Belgian Congo.

D. *Criniger* GROUP.

XI. GENUS *Criniger*.

Temminck, 1920. Type: *Criniger barbatus*.

Bill strong and high, much thicker at the base than near the tip, which is hooked; culmen curved all over; gonys almost straight. Nostrils oval. Rictal bristles well developed. Tarsus short and strong. Wings

and tail rounded. Plumage very long and soft; general color olive yellow or brown, with a conspicuous throat patch of long feathers, white or yellow. Long hair-like feathers on the nape. All species resemble one another closely in color and pattern. Many are fully crested, while others only show indication of a crest, and two none at all. All *Criniger* are forest birds. Their voice is harsh.

1. *C. barbatus*: Upper Guinea.



Text-fig. 10. *Criniger chloronotus chloronotus*.

2. *C. chloronotus*: Lower Guinea and Congo.
3. *C. calurus*: Upper and Lower Guinea to Uganda.
4. *C. olivaceus*: Senegal to Gold Coast.
5. *C. flaveolus*: Himalaya, Assam, Burma, Java, Bali.
6. *C. tephrogenys*: Burma, Siam, Yunnan, Indo-China, Hainan, Malay Peninsula, Sumatra, Borneo, Palawan, Balabac, Camianes.
7. *C. ochraceus*: S. Burma, S. Siam, S. Indo-China, Malay Peninsula, Sumatra, Borneo.
8. *C. finschi*: Malay Peninsula, Sumatra, Borneo.
9. *C. phaeocephalus*: Malay Peninsula, Sumatra and neighboring islands, Borneo.

The grouping of subspecies in the three closely allied and puzzling species, *C. flaveolus*, *C. tephrogenys* and *C. ochraceus*, is difficult and we still have to learn a great deal about them before we can form a final opinion. I adopt here a new grouping proposed by E. Mayr, which I think is the best at the present time; it is following almost exactly one suggested in part by C. B. Ticehurst (*Journ. Bombay N.H. Soc.*, XXXVI, 1933, p. 923-925).

1. *Criniger flaveolus*.
flaveolus: Himalaya, Assam, N. Burma.
burmanicus: C. Burma.
xanthizurus: Java, except East.
balicus: Bali and E. Java.
2. *Criniger tephrogenys*.
griseiceps: C. Burma.
henrici: N. Indo-China, Yunnan.
pallidus: Hainan.

annamensis: C. and S. E. Indo-China.
robinsoni: Tenasserim (S. Burma).
tephrogenys: Malay Peninsula, Sumatra (lowlands).
gutturalis: Borneo (lowlands).
frater: Palawan, Balaban, Camianes.

3. *Criniger ochraceus*.

ochraceus: S. Burma, S. Siam, Cambodia, Cochinchina, N. Malay States.
cambodianus: S. Cambodia (mountains).
sacculatus: Malay Peninsula.
sumatranus: Sumatra (mountains).
ruficrissus: Borneo (mountains).

XII. GENUS *Setornis*.

Lesson, 1839. Type: *Setornis criniger*.

Bill strong and much hooked, the culmen almost straight and gonys convex. Nostrils and rictal bristles as in *Criniger*. Very long hair-like feathers on nape. General color brown above, yellowish-white below. Rectrices tipped with white on the inner web except central pair. No crest. Legs short, feet small.

In its strongly hooked bill, thick and almost straight, *Setornis* recalls *Nicator*, but it is more depressed and the nostrils, rictal bristles, hair on nape and plumage characteristics are completely different and show its really close relationship to *Criniger*. It is a very peculiar bulbul.



Text-fig. 11. *Setornis criniger*.

1. *S. criniger*: Banka I., Borneo.

XIII. GENUS *Microscelis*.

Gray, 1840. Type: *Hypsipetes amdurotis*.

Bill slender and long; culmen carinated and slightly depressed at the base, gently curved; nostrils oval; gonys nearly straight; rictal bristles weak or moderate. Nuchal hair short. Legs very short. Wings moderate to long and pointed. Tail long, rounded, square or slightly forked, the rectrices more or less curved outwards in many species. Feathers of the crown erectile, either rounded or pointed and lengthened. Color very variable. Most of these bulbuls live in forest, on high trees in general, some in large flocks; others in scrub and small trees. Their voice is loud and harsh. Frugivorous and insectivorous.

Subgenus *Tricholestes*.

Salvadori, 1874. Type: *Brachypodius criniger*.

Culmen straight in its basal half, then curved, and hooked, nostrils oval and exposed. Long rectal bristles and very long hairs on the upper back, a unique feature in the family. Wings and tail equal and rounded. General color olive green and brown. Live in brush, bushes and small trees.



Text-fig. 12. *Microscelis criniger criniger*.

1. *M. criniger*: Malay Peninsula, Sumatra, Borneo and neighboring islands.

Subgenus *Iole*.

Blyth, 1844. Type: *Iole olivacea* = *charlottae*.

Bill strongly carinated, pale brown or gray, like the feet. Feathers on crown normal in shape and only slightly elongated. General color uniform olive green, brown or yellow, paler and brighter below.

2. *M. charlottae*:⁵ From Cachar and Sylhet to Burma, Yunnan and Indo-China, Siam, Malay Peninsula, Sumatra, Borneo and neighboring islands, Palawan.
3. *M. nicobariensis*: Nicobar Islands.
4. *M. ictericus*: S. W. India and Ceylon.
5. *M. affinis*: Moluccas, Toghian, Sangi, Peliling, Banggai, and Sula Islands.

M. affinis varies tremendously in size and the smaller forms are strangely similar to *M. ictericus*, while the larger ones, with a particolored tail, dark olive and bright yellow, are not far from *M. everetti*. It is reasonable to assume that they have a Philippinian origin. On account of their distribution, it seems to be difficult to divide these birds into two separate species as one would be tempted to do according to their size and tail pattern.

Subgenus *Microscelis*.

Gray, 1840. Type: *Hypsipetes amaurotis*.

Bill moderately carinated, of various colors like the feet. Feathers on crown pointed

and more or less elongated. General color very variable, with distinct patterns, never uniform olive green, brown or yellow.

6. *M. everetti*:⁶ Philippine Islands (not Luzon).
7. *M. gularis*:⁷ Philippine Islands.
8. *M. siquijorensis*: Philippine I.: Siquijor, Toblas, Romblon, Cebu.
9. *M. amaurotis*: Japan and neighboring islands, Korea and E. China (migrant), Formosa, Riu-Kiu and N. Philippine Islands.
10. *M. virescens*:⁸ Himalaya, Burma, S. China, Indo-China, Siam, Malay Peninsula, Sumatra, Borneo, Java.
11. *M. flavalus*:⁸ Himalaya, Burma, Siam, Indo-China, S. China, Hainan, Malay Peninsula, Sumatra, Borneo.



Text-fig. 13. *Microscelis madagascariensis psaroides*.

12. *M. madagascariensis*:⁹ Madagascar, Mauritius, Aldabra, Reunion, Seychelles, Comoro Islands, Ceylon, India, Assam, Burma, Siam, Indo-China, C. and S. China, Hainan, Formosa.
13. *M. thompsoni*:¹⁰ S. Shan States, N. W. Siam, E. C. Burma.

⁶ Although both forms are found on Mindanao, I consider provisionally *M. rufigularis* as a subspecies of *everetti* and its lowland and open forest representative. *M. haynaldi*, from Sulu and other southern islands, is exactly intermediate.

⁷ *Turdus philippensis* Gmelin is preoccupied by Müller, 1776, and Boddaert, 1783. The next available name is *Philemon gularis* Pucheran in "Cuvier" Arch. Mus. N. H. (Paris), 1855, 7, 344, pl. 18.

⁸ I agree with Deignan that the different forms ascribed by most authors to *malaccensis*, *tickelli*, or *macclellandi* are conspecific with *virescens*, and that *castanotus*, *canipennis* and *cineus* are subspecies of *flavalus*. See Auk, 1942, pp. 313, 314.

⁹ I follow Mayr, Deignan, Danis and others in uniting specifically all the closely allied birds formerly referred to *madagascariensis*, *psaroides* and *leucocephalus*.

¹⁰ I do not consider that a bare skin space round the eye and a chestnut patch on the vent are worth a generic separation under the name *Cerasophila*, as *thompsoni* is evidently very close to *M. m. leucocephalus*.

⁵ Replaces *Iole olivacea* and *Iole virescens*. See H. G. Deignan, Auk, p. 313. *I. striaticeps* is a synonym of *M. c. palawanensis*. Type, in the Rothschild Collection, examined.

EXPLANATION OF THE PLATES

PLATE I.

Fig. 1. *Spizixos semitorques semitorques*.

Fig. 2. *Pycnonotus dispar dispar*.

Fig. 3. *Pycnonotus barbatus xanthopygus*.

PLATE II.

Fig. 4. *Pycnonotus sinensis sinensis*.

Fig. 5. *Microscelis amaurotis amaurotis*.

Fig. 6. *Microscelis madagascariensis psaroides*.

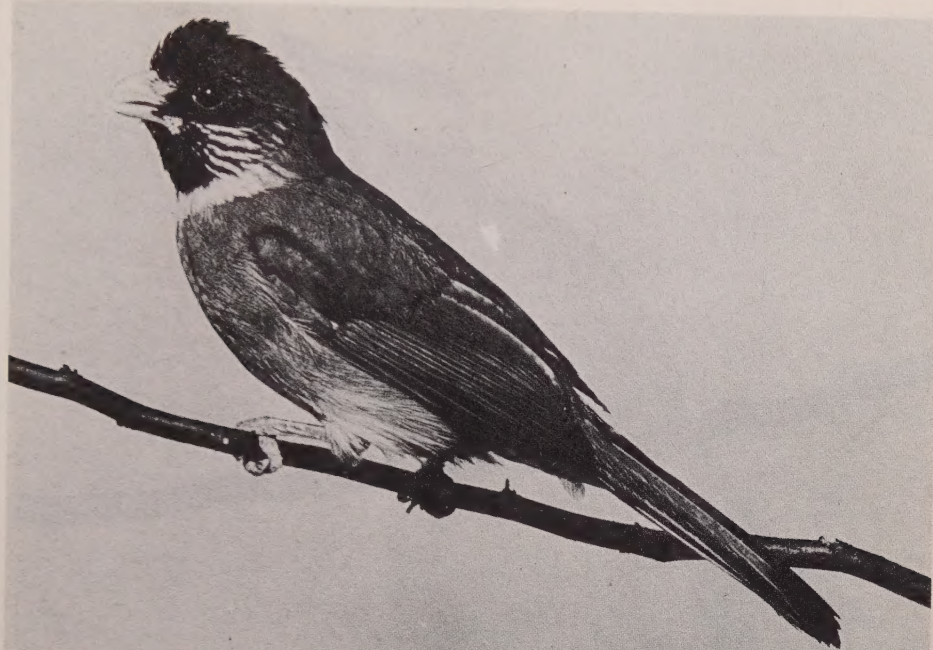


FIG. 1.



FIG. 2.



FIG. 3.

A REVISION OF THE GENERA AND SPECIES OF THE
FAMILY PYCNONOTIDAE (BULBULS).

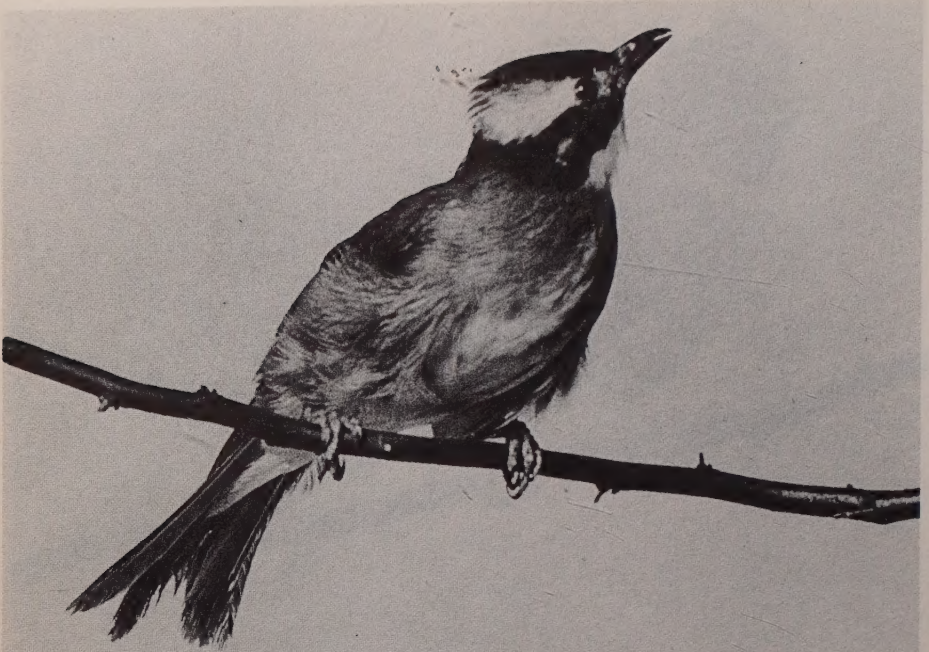


FIG. 4.

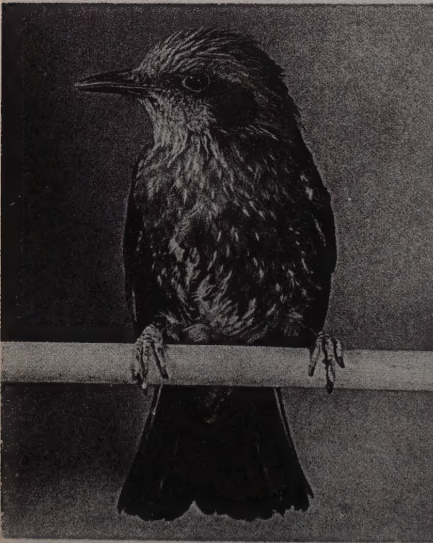


FIG. 5.



FIG. 6.

A REVISION OF THE GENERA AND SPECIES OF THE
FAMILY PYCNONOTIDAE (BULBULS).